

REMARKS/ARGUMENTS

I. Request for Continued Examination

This submittal is included with a request for continued prosecution (RCE). As understood, there is no fee for additional claims previously paid for when filing a request for continued prosecution (RCE), as explained in M.P.E.P. 706.07(h) III D (page 700-85 Rev. 1, Feb.2003). All additional fees are authorized to be paid from 14-0116.

II. Status of the Claims

Claims 58-67 are pending. Claims 58-67 are rejected. Claims 58, 61, 64, 65, and 66 are amended herein. Claims 68 and 69 are added in this paper. No new matter is added.

III. Amendments to the Claims

Claims 58, 61, 64, 65, and 66 have been amended to include other limitations. Specifically, these claims now include limitations that are easier to understand in terms providing more focus on the independent nature of the Applicants' apparatus. Specifically, the Applicants' apparatus is independent of the oxygen supply system and hence, does not regulate the amount of oxygen from the oxygen supply system. Support for this limitation is found on page 3, lines 3-8 of the specification. Also, the apparatus operates in a cockpit of an aircraft. Support for this limitation is found on page 3, line 6 of the specification. Further, Claims 68 and 69 have been added to depend from Claims 64 and 65, respectively. Claims 68 and 69 add the limitation of attaching or positioning a vibrating motor or vibrator to the interior surface or within an air mask. No new matter is added in any claim amendment.

IV. The 35 U.S.C. §112 rejections

A. Claim 58 and 65

Claims 58 and 65 were amended to delete the word “type.” The Applicants respectfully request reconsideration and withdrawal of this rejection.

B. Claim 59

Claim 59 was amended to provide proper antecedent basis for the limitation “the microphone VOX.” The Applicants respectfully request reconsideration and withdrawal of this rejection.

C. Claim 63

Claim 63 was amended to delete the word “tactile” in front of comparator. The word “tactile” was a clerical mistake. The Applicants respectfully request reconsideration and withdrawal of this rejection.

V. The 35 U.S.C. §103 rejections to Claims 58 and 60-68

A. Claims 58, 61, 62, 65-67

Claims 58, 61, 62, 65-67 are rejected as above over Cramer et al. USPN 4109509 (hereinafter referred to as **Cramer**) in view of Debe et al. USPN 5659296 (hereinafter referred to as **Debe**) and, for specific limitations, in further in view of Basham et al. USPN 3675649 (hereinafter referred to as **Basham**). Applicants have amended independent Claims 58, 61, 65, and 66. Claims 62 and 67 depend on Claims 61 and 66, respectfully. Applicants respectfully traverse and request reconsideration of this rejection in light of the amendments to Claims 58, 61, 65, and 66 in this paper for the following reasons.

A.1 All Claim Limitations Must Be Considered

The references do not teach or suggest all the claim limitations *as amended*. When evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. MPEP §2143.03 states:

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.

Because from the facts derived from the references, as set forth below, the references do not teach or suggest all of the claim limitations, and thus, the rejection is unsupported by the art and should be withdrawn.

The “Independent” Limitation

The references do not teach or suggest an independent oxygen monitoring system wherein the system is independent from an aircraft’s oxygen supply system. This “independent” limitation is also captured in a negative limitation, “wherein the apparatus does not regulate the oxygen system.” **Cramer** teaches an oxygen and warning device for an aircraft breathing system wherein the oxygen and warning device is an integral part of the aircraft breathing system. Specifically, **Cramer**’s invention utilizes a chamber wherein **Cramer**’s sensor is located inside said chamber and wherein the oxygen must flow-through said chamber (‘509, FIG. 2). Further, **Cramer**’s invention utilizes at least one valve and what **Cramer** describes as an “aneroid” arrangement for regulating the flow of oxygen to a pilot (‘509, FIG. 2, Col. 1, lines 31-57). Hence, **Cramer**’s invention is an integral part of the breathable fluid ultimately delivered to the pilot and is not independent of an aircraft’s oxygen supply system. **Basham** teaches an electronically controlled oxygen regulator. A primary purpose of an oxygen regulator is to conserve the oxygen supply and therefore, is an integral part of the oxygen supply system.

Basham's invention utilizes an electronic control circuit which controls the operation of an oxygen supply valve and an expiratory/air inlet valve in accordance with the breathing cycle and the oxygen partial pressure so as to maintain proper breathable gas conditions in a mask ('649, Abstract). Hence, **Basham**'s invention is an integral part of an aircraft's oxygen supply system and is not independent of the oxygen supply system. **Debe** teaches an exposure indicating apparatus for use in a face mask and *is* independent of an oxygen delivery system. However, **Debe** does not teach or suggest operating his invention in an aircraft and does not contain a suggestion or motivation for an independent sensory warning device to circumvent the same problem identified by the Applicants, discussed *infra*.

The significance of an independent system solves an important problem as described in the Applicants specification (ref: page 19, line 20 through page 20, line 2). Specifically, aircraft systems are typically integrated and would require costly modifications if a partial pressure oxygen warning system is incorporated into a pre-existing institutional caution and warning system, oxygen supply system, or both. For example, especially with older aircraft models such as the KC-135, the institutional systems in these old aircraft models are out-dated and there may not be vendors for certain spare parts. Major overhauling of institutional systems is extremely expensive. In fact, the cost of such a modification makes it cost prohibited, absent unusual circumstances. Conversely, the independent nature of the Applicants' invention circumvents this significant problem and allows for cost-effective replacement of an aircraft's air mask as opposed to costly retrofitting into pre-existing, institutional systems. It is noted that the above argument is not an argument for "economic infeasibility" as described in MPEP §2145.VII. The Applicants' are not arguing that the Examiner's proposed combination is economically infeasible. Rather, the Applicants' are arguing that the Applicants' invention is the most

economically feasible combination and, more importantly, this specific limitation is not taught or suggested by the prior art.

The “Within the Air Mask” Limitation

Specifically in reference to Claims 58-60, 62, and 67, **Cramer**, **Debe**, or **Basham** do not teach or suggest incorporating a vibrating motor or means for providing a tactile warning within an air mask. **Cramer** and **Basham** do not teach or suggest the use of a vibrating motor or means for providing a tactile warning. **Debe**, on the other hand, does teach the use of a vibrating device. However, as correctly stated by the Examiner, **Debe** does not teach the use of a vibrating device mounted within an air mask. The Examiner argues that, “It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the vibrating motor within the air mask, since it has been held that rearranging parts of an invention involves only routine skill in the art.” (ref: December 29, 2004 Final Office Action, page 4, paragraph 9) However, as will be discussed *infra* (ref: Section A.5 of paper), **Debe** teaches away from mounting a vibration device within an air mask. And thus, the Examiner’s argument, with respect to **Debe**, is erroneous for **Debe** himself excludes this specific arrangement.

Therefore, the Applicants traverse the Examiner’s rejections and respectfully argue that, for the claims as amended, a *prima facie* case of obviousness has not been established.

A.2 There Must be a Basis in the Art for Combining or Modifying References

There must be a basis in the art for combining or modifying the references. MPEP §2143.01 provides:

The mere fact that references can be combined or modified does not render the resultant

combination obvious unless the prior art also suggest the desirability of the combination.

Accordingly, even if all the elements of a claim are disclosed in various prior art references, the claimed invention taken as a whole cannot be said to be obvious without some logical reason given in the prior art why one of ordinary skill would have been prompted to combine the teachings of the references to arrive at the claimed invention.

The Examiner did provide a particular reference but did not particularly point out a motivation or suggestion, either explicitly or implied, in the particular reference. Based on the fact that the Examiner did not particularly point out a motivation or suggestion in a particular reference, either explicitly or implied, it is interpreted that the Examiner is basing the proposed combination on “common knowledge” or “common sense.” MPEP §2144.03.A, as recently amended, states:

It is never appropriate to rely solely on “common knowledge” in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. [*In re Zurko*, 258 F.3d [1379,] at 1385, 59 USPQ2d [1693,] at 1697 [(Fed. Cir. 2001)]. (“[T]he Board cannot simply reach conclusions based on its own understanding or experience--or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to *some concrete evidence in the record* in support of these findings.”). ...It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well-known are not capable of *instant and unquestionable* demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation in the pertinent art. (emphasis added).

The standards of “instant and unquestionable” demonstration of being well-known is undeniably a high standard. It is certainly logical to argue that if the Applicants can present a reasonable basis for a particular combination, then the Examiner is required under the recently amended MPEP to provide a suggestion or motivation in a particular reference. In fact, the Examiner touched on this exact issue in the December 29, 2004 Final Office Action where he stated, “the applicant has not disclosed why the particulars of the power source are of importance or solve a state problem or provide an advantage over the prior art.” The Applicants will now attempt to alleviate their past omissions and based on the arguments *infra*, respectfully challenge that the Examiner’s statements are not properly officially noticed and not properly based upon common knowledge for the following reasons.

It respectfully appears that the Examiner is taking the disclosure of a comparator in **Cramer**, combining the disclosure of a vibrator releasably attached to a face mask in **Debe**, and finally combining an oxygen partial pressure sensor mounted in an air mask in **Basham**. The Applicants respectfully request reconsideration of the subject rejection in light of amendments made to Claims 58, 61, 65, and 66. The Applicants respectfully argue that **Cramer**, **Debe**, or **Basham** contain no suggestion or motivation for providing a vibrating motor or tactile warning means on or within an air mask for operation in an aircraft’s cockpit. The Applicants respectfully argue that the vibrating motor or means as a tactile warning device is more than a mere design choice. As explained in the Applicants’ specification, “a vibrator beating the nose and face of the user is a very effective warning for an already groggy user in an environment that is saturated with visual cues and sounds.” (ref: page 20, lines 2-4) The Applicants have recognized that an aircraft’s cockpit is saturated with visual cues and sounds, which can result in the de-sensitivity of a pilot to traditional caution and warning cues. Another light, sound, or

combination does not solve the problem of this de-sensitivity factor. Rather, the Applicants' invention utilizes a vibrating motor or means for a tactile warning device in an air mask because such a tactile warning cue is unique relative to institutional caution and warning cues in an aircraft's cockpit. Further, in Claim 59, the Applicants also combine a unique audio cue with the vibrating cue to claim a unique combination. The Examiner uses the vibrator in **Debe** to argue that combining such a vibrator with the systems of **Cramer** and **Basham** would make the Applicants' invention obvious. However, **Cramer**, **Debe**, or **Basham** do not contain a suggestion or motivation for incorporating a vibrating warning cue in or on an air mask that operates in an aircraft's cockpit. In fact, it is very clear that **Debe** does not recognize the advantage of a vibrating motor on a mask in a sensory-saturated environment because **Debe** offers an alternative embodiment wherein his sensor is similar to a clip-on pager worn on the user's clothing or not even worn by the user at all (rather placed in a specific area). (ref: '296, Col. 9, lines 5-10) Further, **Debe** offers utilizing a visual, audio, or tactile warning cue as equal alternatives (ref: '296, Col. 2, lines 62-64). It is clear that **Debe** is, in general, not concerned with a sensory-saturated environment and, in particular, certainly not concerned with the environment of an aircraft's cockpit. The significance of the problem described in this paragraph necessitates a standard greater than "instant and unquestionable" and thus, requires a suggestion or motivation in a particular reference.

Therefore, in light of the current amendments and supporting arguments *supra*, the Applicants traverse the Examiner's "common knowledge" rejections, respectfully argue that a *prima facie* case of obviousness has not been established under the current law, respectfully request reconsideration of the subject rejection, and if the Examiner stands by his argument, respectfully demand that the Examiner produce proper authority for his statement.

A.3 Prior Art Does Not Teach or Suggest the Problem or Its Source

The references do not teach the problem or the problem's source as encountered by the Applicants. The historic case of *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45 (1923) established the rule that the discovery of the source of a problem may result in a patentable invention despite the fact that the solution would have been obvious once the source of the problem was discovered. Thus, if recognition of the source of the problem is not taught or suggested by the prior art, a *prima facie* case of obviousness has not been established. MPEP §2141.02 under "Discovering Source/Cause of a Problem is Part of 'As a Whole' Inquiry" states:

[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified.

Because from the facts derived from the references, as set forth below, the references do not teach or suggest the problem or the problem's source, and thus, the rejection is unsupported by the art and should be withdrawn.

First, it is respectfully noted that amendments have been made to Claims 58, 61, 65, and 66. The arguments *infra* are made in light of these amendments.

Second, as stated *supra*, the significance of an independent system solves an important problem that currently exists in the aircraft industry. Specifically, aircraft systems are typically integrated and would require costly modifications if a partial pressure oxygen warning system is incorporated into a pre-existing institutional caution and warning system or oxygen supply system. In fact, the cost of such a modification can make it cost prohibited. Conversely, the independent nature of the Applicants' invention circumvents this significant problem. It may be argued that the solution is relatively apparent, however, it's a classic example of not losing sight

of the importance in recognizing the source of the problem. In sum, this source has not been suggested or taught in any of the references supplied by the Examiner.

Third, as stated *supra*, the significance of a vibrating motor or means for a tactile warning device on or within an aircraft's air mask solves another important problem that currently exists in the aircraft industry. Specifically, aircraft cockpits represent a sensory-saturated environment full of audio and visual warning cues. The Applicants use of a vibrating motor or means for a tactile warning device on or within an aircraft's air mask represents a solution to this unique problem. The source to this unique problem has not been suggested or taught in any of the references supplied by the Examiner.

Therefore, the Applicants traverse the Examiner's rejections and respectfully argue that a *prima facie* case of obviousness has not been established.

A.4 References are not Properly Combinable or Modifiable if the Primary Reference's Intended Function is Destroyed

The combination or modification of the references in the manner suggested by the Examiner would render the primary reference inoperable for its intended purpose. MPEP §2143.01 states:

If [the] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Because from the facts derived from the references, as set forth below, the suggested combination or modification would render the primary reference inoperable for its intended purpose, the rejection is unsupported by the art and should be withdrawn.

First, the primary reference is **Cramer**. Contrary to the Examiner's statements in paragraph 8, page 3 of the December 29, 2004 Final Office Action, **Cramer** does not teach an apparatus for monitoring an oxygen partial pressure in an air mask. In fact, the only time **Cramer** mentions an air mask is in his background section where **Cramer** discusses how prior art devices monitor partial pressure of oxygen supplied to a pilot's air mask (ref: '509, Col. 1, lines 15-16). Perhaps the Examiner confused **Cramer** with **Basham**? In any case, based on the December 29, 2004 Final Office Action, as written, the primary reference is **Cramer**.

Second, given that the primary reference is **Cramer**, **Cramer** teaches an oxygen monitoring and warning device integrated with the oxygen supply system of an aircraft (ref: '509, FIG. 2). Hence, adding a limitation wherein **Cramer**'s invention is independent of an aircraft's oxygen supply system would render **Cramer**'s invention inoperable for its intended purpose.

Third, the bulky nature of **Cramer**'s device would render it inoperable for its intended purpose if **Cramer**'s device were mounted on or within an air mask. Specifically, **Cramer**'s invention requires a chamber of great enough size to incorporate all of the valves and components taught by **Cramer**. The relative scale of **Cramer**'s device is illustrated in '509, FIG. 1. Simply stated, **Cramer**'s device was not intended for attachment on or within an air mask.

It is also notable that even if **Basham** were the primary reference, **Basham** is a regulator and thus, adding a limitation wherein **Basham**'s invention is independent of an aircraft's oxygen supply system would render **Basham**'s invention inoperable for its intended purpose.

Therefore, the Applicants traverse the Examiner's rejections and respectfully argue that a *prima facie* case of obviousness has not been established.

A.5 Proposed Modification Cannot Change the Principle of Operation of the Primary Reference

The combination or modification of the references in the manner suggested by the Examiner would change the principle of operation of the primary reference. MPEP §2143.01 states:

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

Because from the facts derived from the references, as set forth below, the suggested combination or modification would change the principle of operation of the primary reference, the rejection is unsupported by the art and should be withdrawn.

As stated *supra*, **Cramer** teaches an oxygen monitoring and warning device integrated with the oxygen supply system of an aircraft (ref: '509, FIG. 2). **Cramer**'s invention depends on direct attachment to the oxygen flow line to help regulate the flow of oxygen to the pilot. Simply stated, adding a limitation wherein **Cramer**'s invention is independent of an aircraft's oxygen supply system would change the principle of operation of **Cramer**'s invention.

Therefore, the Applicants traverse the Examiner's rejections and respectfully argue that a *prima facie* case of obviousness has not been established.

A.5 Teaching Away

The references teach away from the Examiner's proposed combination. MPEP §2145 states:

It is improper to combine references where the references teach away from their combination.

Because from the facts derived from the references, as set forth below, the references teach away from their combination, the rejection is unsupported and should be withdrawn.

First, as stated *supra* and with respect to Claims 58-67, both **Cramer** and **Basham** teach oxygen monitoring and warning systems that are integrated with an aircraft's oxygen supply system. Simply stated, due to this distinction, **Cramer** and **Basham** teach away from an oxygen monitoring and warning system that is independent of an aircraft's oxygen supply system. In the case of **Cramer**, **Cramer**'s invention is directly connected to the oxygen flow line with an inlet and outlet. In the case of **Basham**, **Basham**'s invention regulates the flow of oxygen wherein a primary purpose is to conserve the oxygen used. In both cases, these inventions are integrated with the oxygen supply system. Thus, the Examiner's proposed combination of **Cramer**, **Debe**, and **Basham** is improper because both **Cramer** and **Basham** teach away from this combination.

Second, with specific reference to Claims 58-60, 62, and 67, **Debe** teaches an independent oxygen monitoring and warning system with a vibrating motor as a tactile warning means. However, as correctly stated by the Examiner in the December 29, 2004 Final Office Action, **Debe** does not teach or suggest mounting a vibrating motor within an air mask. The reason **Debe** does not teach or suggest mounting a vibrating motor within an air mask is because **Debe** teaches away from such an arrangement. The first indication of **Debe**'s motivation relative to this issue appears on '296, Col. 2, lines 34-41, where **Debe** states,

"Some disclosed indicators typically locate the sensor within the air flow path of the face mask so that it is not possible to detach the sensor or the signaling device without interrupting the flow of purified air to the face mask. In the event that the sensor and/or

signaling device malfunction or becomes contaminated, the user would need to leave the area containing the target species in order to check the operation of the respirator.”

Debe is describing what he perceives as a disadvantage. Specifically, a sensor and/or *signaling device* positioned in an arrangement that interrupts the flow of purified air to the face mask if detached is a disadvantage, according to **Debe**. **Debe** has designed an exposure indicating apparatus for use in a respiratory system to protect users from dangerous chemicals ('296, Col. 1, lines 9-10), and not in an aircraft cockpit. Therefore, **Debe** has designed an apparatus that can be easily detached and checked without interrupting the flow of purified air, which in turn, does not interrupt the user's task or operation. In fact, **Debe** discusses his non-interference motivation on '296, Col. 8, lines 23-30, where **Debe** states:

“This feature [removal feature] allows the user to replace the batteries, substitute a new or different sensor, or perform other maintenance on the exposure indicator without leaving the area containing the target species.”

If said exposure indicating apparatus were releasably attached to the interior surface of an air mask, this arrangement would interrupt the flow of purified air and certainly, interrupt a user's task or operation. In other words, the user would have to remove the air mask to detach **Debe's** exposure indicating apparatus if said apparatus were releasably attached to the interior surface of the air mask. Further, due to the volume constraints within an air mask and the necessity for reasonable clearance between the nose of a user and the interior surface of an air mask, the size of **Debe's** invention would also make it impractical to releasably attach his invention to the interior surface of an air mask. It is also noted that this releasable feature is a motivation that is very distinct from the Applicants' motivation. In an aircraft cockpit environment, due to obvious concentration requirements, it is not realistic to disconnect an indicator device from a face mask

and check said indicator device for maintenance reasons, while at the same time flying an aircraft and possibly in a near-hypoxic situation. It is still further noted that **Debe**'s exposure indicating apparatus is primarily comprised of a sensor and a processing unit wherein the processing unit includes the "indicator," which may be an audio, visual, or tactile device. **Debe** does teach and suggest, in alternative embodiments, bifurcating the sensor and processing unit wherein the *sensor* is not releasably attached to the respiratory system. However, in all cases, **Debe** teaches releasably attaching the processing unit, which would contain a tactile indicator, to the respiratory system. In fact, an examination of **Debe**'s claims reveals that the "releasably attaching" limitation exists in all forty-six (46) claims, either explicitly or by dependency. Further, in all of **Debe**'s embodiments, he describes a releasable mechanism (ref: '296, FIGS. 2, 3, and 20) in an arrangement so as to not interrupt the flow of purified air. After closer inspection of **Debe**, it is clear that **Debe** teaches away from a) a non-releasable indicator and b) an arrangement wherein a releasable indicator would interrupt the flow of purified air if released. The Applicants teach a non-releasable indicator within an air mask, which would make **Debe**'s invention inoperable for its intended use. Hence, **Debe** is not a proper reference for this rejection.

Therefore, the Applicants traverse the Examiner's rejections and respectfully argue that a *prima facie* case of obviousness has not been established.

B. Claims 60 and 63

In sum, Claims 60 and 63 depend on Claims 58 and 61. The arguments describe *supra* apply to Claims 60 and 63 through this dependency. Therefore, the Applicants respectfully

traverse, request reconsideration, and request withdrawal of the rejections to Claims 60 and 63 over **Cramer** in view of **Debe** and in further view of **Basham**.

C. Claim 64

Claim 64 has been amended to provide clarity on the independent nature of the Applicants' apparatus. Specifically, the Applicants' apparatus is independent of the oxygen supply system and hence, does not regulate the amount of oxygen from the oxygen supply system. The Applicants have described *supra* why the particulars of an independent apparatus is of importance, solves a problem, and provides an advantage over the prior art. Therefore, the Applicants respectfully traverse, request reconsideration, and request withdrawal of the rejection to Claim 64 over **Cramer** in view of **Debe** and in further view of **Basham**.

VI. Conclusion

It is submitted in view of these remarks that all grounds for rejection have been removed by the foregoing amendments and discussion. Reconsideration and allowance of this application are therefore earnestly solicited.

The Examiner is invited to phone Mr. Theodore Ro, attorney for Applicant, 281-244-7148, if in his opinion such a phone call would serve to expedite the prosecution of subject patent application.

Respectfully submitted,

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